



Air Quality Permitting Statement of Basis

August 15, 2005

**Permit to Construct No. P-060304
and
Tier I Operating Permit No. T1-060305**

**Ash Grove Cement Company
Inkom, ID**

Facility ID No. 005-00004

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Proposed PTC and Tier I Amendment for Public Comment

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Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
BACT	Best Available Control Technology
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscfm	dry standard cubic feet per minute
gr/dscf	grain (1 lb = 7,000 grains) per dry standard cubic feet
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
lb/ton	pound per ton
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
SIP	State Implementation Plan
SM	Synthetic Minor
SO ₂	sulfur dioxide
T/yr	tons per year
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

Ash Grove Cement Company (Ash Grove) manufactures Portland cement. The Inkom facility is located adjacent to the quarry from which raw limestone, MgO limestone, clay, and shale are mined. The raw materials are removed from the bedrock by blasting with explosives, then bulldozing the rock to the quarry floor, and hauling the rock to the jaw crusher. The silica and iron ore are hauled to the plant and stockpiled. These materials are also crushed as needed.

The mined material is usually too large to be used in cement manufacturing at this point, so further processing is required. Material enters a crusher and is screened until the appropriate size is obtained. When the rock reaches the desirable size it is transported by a conveyor belt to storage silos for later use in the cement making process. The rock from the silos is measured, and then transported to a ball mill by conveyor belts. The material is ground, forming homogeneous slurry of water and rock.

The slurry is fed to the back of the kiln, which declines at a 4% slope. In order to form clinker the slurry must be heated to incipient fusion where calcination takes place. To perform the energy intensive task of making clinker, gases flowing counter current to the material flow are heated to an excess of 1650°C (3,000°F) by fossil and used fuels. Currently, the primary fuels used by the Inkom plant kiln are coal and whole tires.

The chemically reacting raw materials reach a temperature of approximately 1538°C (2800°F) before exiting the kiln and entering the clinker cooler.

The clinker exits the kilns at temperatures of 2000°F. It enters clinker coolers beneath the kiln where the heat is transferred from the clinker to the secondary air that reenters the kiln. All the forced air entering the cooler is utilized in the kiln as primary and secondary air for fuel combustion. The clinker leaves the cooler at around 260°C (500°F). Drag chains, elevators, and conveyor belts are used to transport the warm clinker from the clinker cooler to clinker storage.

The clinker is transported from the storage areas to the three finish ball mills where it is ground with gypsum to make cement. Separators are used to return oversized particles back to the mills for additional grinding. The plant can grind 450,000 tons of clinker per year. The cement is then pneumatically conveyed to the cement storage silos. Upon withdrawal from the silos, the cement is shipped bulk to customers.

A byproduct from the manufacturing process is a potassium sulfate solution. The product is leached from dust collected from the electrostatic precipitators (ESPs), making a potash solution. The potash solution is pumped to two lined evaporating ponds located near the quarry. Fertilizer companies transfer the solution to their trucks for distribution to potato farming customers.

3. FACILITY / AREA CLASSIFICATION

The facility is a designated facility as defined in IDAPA 58.01.01.006.27 (Portland Cement Plant). The AIRS Facility Subsystem classification is “A” because potential emissions of PM₁₀, SO₂, NO_x, and CO are greater than 100 tons per year. The facility is a major facility for PSD permitting purposes, because the facility’s PTE is greater than 100 T/yr. This facility is a portland cement manufacturer, SIC code 3241. Ash Grove is located in AQCR 61 in Bannock County. The area is classified as attainment or unclassifiable for all federal and state criteria air pollutants (PM₁₀, SO_x, O₃, NO₂, CO, and Pb). There are no class I areas within 10 km of the facility. A revised AIRS table is not included in the Appendix since there are no changes to this table as a result of this project.

4. APPLICATION SCOPE

Ash Grove has applied for a PTC modification for processing changes, including increasing existing throughput limits for the following sources:

- Increase the limestone processing rate limit for drilling, blasting and dozing from 435,708 to 528,000 tons/yr
- Increase the quarry processing rate limit for limestone, clay and shale from 435,708 to 475,000 tons/yr
- Increase the processing rate limit for gypsum receiving, crushing and storage from 22,737 to 34,106 tons/yr
- Utilize existing Silo 25 to store/convey crushed limestone to the finish mill feed bins
- Increase the finish mill processing rate limit from 382,737 to 394,106 tons/yr.
- Increase the cement loadout rate limit from 382,737 to 394,106 tons/yr
- Correct the raw mill throughput limit so it corresponds to the sum of individual feed components

4.1 Application Chronology

February 23, 2006	PTC and Tier I operating permit application received
March 10, 2006	Request to also change/correct raw mill throughput limit was received
March 24, 2006	PTC and Tier I applications declared complete
April 24, 2006	Request received from Ash Grove for a draft permit for review
May 22, 2006	Draft PTC issued to Ash Grove for review
June 9, 2006	Ash Grove requested coal handling throughput increase
July 31, 2006	Ash Grove withdrew coal handling throughput increase request

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Emissions Inventory

Estimated PTE Changes

For purposes of evaluating applicable requirements such as compliance with the NAAQS, changes in the potential to emit (PTE) were estimated in the permit application for all sources included in this modification. The estimated changes were reviewed and found to be consistent with DEQ methods and procedures. A summary is provided in Tables 5.1 and 5.2, and details are included in the Appendix. It is noted that the PTE increases associated with this project are zero since the existing permit limits for these sources were found to be higher than the estimated emissions following the modification for each source.

Table 5.1 EMISSION INVENTORY - PTE CHANGE - PM

Source	Existing PTE ^a (tons/yr)	PTE of Proposed Modification (tons/yr)	PTE Increase (tons/yr)	Modeling Threshold
Limestone: Drilled, Blasted and Dozed	29.34	4.88	0	n/a
Limestone: Received, Crushed and Stored	17.75	1.12	0	n/a
Gypsum: Receiving Crushing and Storing	1.18	0.12	0	n/a
Cement Production: Finish Grinding and Handling	5.24	0.53	0	n/a
Cement Shipping	4.01	0.24	0	n/a
Project Total	---	---	0	n/a

^a Existing PTE is based on the existing permit emission limit.

Table 5.2 EMISSION INVENTORY - PTE CHANGE - PM₁₀

Source	Existing PTE ^a (tons/yr)	PTE of Proposed Modification (tons/yr)	PTE Increase (tons/yr)	Modeling Threshold
Limestone: Drilled, Blasted and Dozed	3.09	1.96	0	---
Limestone: Received, Crushed and Stored	7.82	0.54	0	---
Gypsum: Receiving Crushing and Storing	0.54	0.06	0	---
Cement Production: Finish Grinding and Handling	2.41	0.18	0	---
Cement Shipping	2.00	0.12	0	---
Project Total	---	---	0	1 ton/yr

^a Existing PTE is based on the existing permit emission limit.

Estimated Emissions for Major Modification Analysis

Since Ash Grove is classified as a major facility under the PSD program, emission estimates are also needed to determine if the proposed modification is a “major modification.” The estimates needed for this particular analysis are based on “actual emissions” instead of potential emissions which makes them different from the estimates prepared to demonstrate compliance with other rules such as the NAAQS. Therefore, estimated emissions for the major modification determination were provided in the permit application for all sources included in this “project”. The estimated changes were reviewed and found to be consistent with DEQ methods and procedures. A summary is provided in Tables 5.3 and 5.4, and details are included in the Appendix.

Table 5.3 MAJOR MODIFICATION TEST FOR EXISTING UNITS - PM₁₀ (tons/yr)

Source	2004-05 Average Production	Proposed Production	Baseline Actual Emissions	Projected Actual Emissions	Project Increase
Limestone: Drilled, Blasted and Dozed	344,504	528,000	1.28	1.96	0.68
Limestone: Received, Crushed and Stored	400,384	475,000	0.48	0.54	0.06
Gypsum: Receiving Crushing and Storing	19,177	34,106	0.03	0.06	0.02
Cement Production: Finish Grinding and Handling	316,031	394,106	0.17	0.18	0.01
Cement Shipping	316,013	394,106	0.11	0.12	0.01
Project Total	---	---	2.07	2.86	0.78
Significant Emission Rate	15				
Does increase exceed Significant?	No				

Table 5.4 MAJOR MODIFICATION TEST FOR EXISTING UNITS - PM (tons/yr)

Source	2004-05 Average Production	Proposed Production	Baseline Actual Emissions	Projected Actual Emissions	Project Increase
Limestone: Drilled, Blasted and Dozed	344,504	528,000	3.19	4.88	1.69
Limestone: Received, Crushed and Stored	400,384	475,000	0.99	1.12	0.13
Gypsum: Receiving Crushing and Storing	19,177	34,106	0.06	0.12	0.05
Cement Production: Finish Grinding and Handling	316,031	394,106	0.50	0.53	0.03
Cement Shipping	316,013	394,106	0.22	0.24	0.02
Project Total	---	---	4.96	6.88	1.92
Significant Emission Rate	25				
Does increase exceed Significant?	No				

5.2 Modeling

Modeling is not required for this project because, the increase in potential emissions is less than the modeling thresholds presented in DEQ's Air Quality Modeling Guideline, dated December 31, 2002.

5.3 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201.....Permit to Construct Required

A permit to construct is required prior to construction or modification of any stationary source, facility, major facility, or major modification unless the source is exempt per IDAPA 58.01.01.220-223. For this project, the facility has requested a PTC and Tier I amendment, and this will be done using the procedures under IDAPA 58.01.01.209.05.c.

IDAPA 58.01.01.205. [40 CFR 52.21] Permit Requirements for New Major Facilities or Major Modifications in Attainment of Unclassifiable Areas

IDAPA 58.01.01.205.01 [40 CFR 52.21(a)(2)(iv)]. This project to increase the processing rate limits for limestone, shale, clay, gypsum and finished cement is not a major modification based on the following analysis.

A project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases - a significant emissions increase and a significant net emissions increase. The project is not a major modification if it does not cause a significant emissions increase. These rules specify a two part test to make this determination. The first test is used to determine if the project will cause a significant emissions increase, and this is given by 52.21(a)(2)(iv)(b) through (f). The second test, if required, is used to determine if the project will cause a significant net emissions increase, and this is given by 52.21(a)(2)(iv)(b) and 52.21(b)(3).

The “project”, as defined by 52.21(b)(52) means “a physical change in, or change in the method of operation of, an existing major stationary source.” For purposes of this analysis, the “project” includes changes for emissions units in the following processes:

- Increase the limestone processing rate limit for drilling, blasting and dozing
- Increase the quarry processing rate limit for limestone, clay and shale
- Increase the processing rate limit for gypsum receiving, crushing and storage
- Increase the finish mill processing rate limit
- Increase the cement loadout rate limit

This permit modification pertains only to “existing emissions units,” therefore, the test under 52.21(a)(2)(iv)(c) is used to determine if the project is significant. This regulation reads as follows:

A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions (as defined in [52.21(b)(41)]) and the baseline actual emissions (as defined in [52.21 (b)(48)(i) and (ii)]), for each existing emissions unit, equals or exceeds the significant amount for that pollutant (as defined in [52.21(b)(23)]).

This analysis was performed by the applicant and a copy is included in Appendix A. The analysis was reviewed by DEQ and found to be consistent with DEQ methods. The results are summarized in Tables 5.3 and 5.4 in the Emissions Inventory Section above. The results show that the project will not cause a significant emissions increase and, therefore, netting is not necessary and the project is not a major modification.

40 CFR 52.21(r)(6) specifies requirements for “projects at an existing emissions unit at a major stationary source in circumstances where there is a reasonable possibility that a project that is not a part of a major modification may result in a significant emissions increase and the owner or operator elects to use the method specified in paragraphs (b)(41)(ii)(a) through (c) of this section for calculating projected actual emissions.” For this project to increase the processing rate limits for limestone, shale, clay, gypsum and finished cement, because the project does not debottleneck or increase emissions from the kiln process line or the cement process line, there is not a reasonable possibility that this project would result in a significant emissions increase. Therefore, Section (r)(6) does not apply.

IDAPA 58.01.01.209.05.c.....Permit to Construct Procedures for Tier I Sources

This PTC modification is for a Tier I source, therefore, the PTC is processed according to the procedures for a Tier I source. A draft PTC will be provided for public comment, affected state and tribal review per Sections 209, 364, and 365. The proposed PTC will also be sent to EPA for review, concurrently with the 30-day comment period, per Sections 209.05.c and 366.

The permittee may at any time after issuance of the PTC, request that the PTC requirements be incorporated into the Tier I operating permit through an administrative amendment in accordance with Section 381. Ash Grove has requested that the PTC be included into the Tier I permit as an administrative amendment, and that the two permits be processed concurrently.

IDAPA 58.01.01.382.01.....Significant Permit Modification

This project is a Tier I significant modification since the proposed increases in throughput limits would contradict throughput limits in the existing Tier I permit. Also, the change is subject to the provisions of this section per IDAPA 58.01.01.382.01(e) because the change constitutes a modification under a provision of Title I of the Clean Air Act.

40 CFR 60 Subpart FStandards of Performance for Portland Cement Plants

Applicability is defined in the subpart as follows:

“60.60(a) The provisions of this subpart are applicable to the following affected facilities in portland cement plants: Kiln, clinker cooler, raw mill system, finish mill system, raw mill dryer, raw material storage, clinker storage, finished product storage, conveyor transfer points, bagging and bulk loading and unloading systems.”

“(b) Any facility under paragraph (a) of this section that commences construction or modification after August 17, 1971, is subject to the requirements of this subpart.”

This PTC includes the addition of a new transfer point: “a new trip chute to allow Tripper Belt C to discharge limestone into Silo 25” (source code F20). This trip chute is similar to the equipment used for this purpose on the other adjacent silos. The new trip chute on top of Silo 25 will not increase emissions beyond what would occur if Ash Grove increased the throughput to one of the other existing limestone silos (i.e., the emissions are the same regardless of which trip chute is used). Subpart F applies to the Silo 25 trip chute, because it is new construction and it is an “affected facility” since its operation will support the Finish Mills. Subpart F is not triggered for the existing Silo 25 withdrawal, conveying and storage equipment since that equipment is not modified as part of this project.

40 CFR 60.62(c), “Standard for Particulate Matter,” is as follows:

“On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility other than the kiln and clinker cooler any gases which exhibit 10 percent opacity, or greater.”

This opacity standard was added to the “Quarried Raw Material Receiving, Crushing, and Storage” sections of the PTC and the Tier I operating permit.

The performance testing requirement to demonstrate compliance with the opacity standard is from 40 CFR 60.8 (a) as follows:

“ Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility and at such other times as may be required by the Administrator under section 114 of the Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Administrator a written report of the results of such performance test(s).”

This performance testing requirement was added to the “Quarried Raw Material Receiving, Crushing, and Storage” sections of the PTC and the Tier I operating permit.

5.4 Permit Conditions Review

This section describes only those permit conditions that have been revised, modified or deleted as a result of this permit action. All other permit conditions remain unchanged.

PTC Page 1, Item - 8 Permit Authority

The following statement was removed to be consistent with currently issued permits: “This permit is not transferable to another person, place, or piece or set of equipment...”

PTC Section 2 Condition 2.4.1, and Tier I Condition 3.2

The process rate limit for limestone rock drilled, blasted, or dozed per year was increased from 435,708 to 528,000 tons.

PTC Section 3 Condition 3.4.1, and Tier I Condition 4.4

For quarried raw materials receiving, crushing, and storage, the process rate limit for limestone, clay, and shale, per year, was increased from 435,708 to 475,000 tons per year.

PTC Section 3 Conditions 3.2.2 and 3.3.4, and Tier I Conditions 4.3 and 4.10

For the new Silo 25 Tripper Belt C Trip Chute, permit conditions which specify the NSPS 10 percent opacity limit and the opacity performance test required under to CFR 60.62 and 60.8 were added to the permits. Refer to the Regulatory review section above, under 40 CFR 60 Subpart F, for details.

PTC Section 4 Condition 4.6.1, and Tier I Condition 7.3

For gypsum receiving, crushing and storage, the process rate limit was increased from 22,737 to 34,106 tons of gypsum (or gypsum/limestone blend) per year.

PTC Section 5 Condition 5.4.1, and Tier I Condition 9.3

The process rate limit for the raw mill was increased from 450,000 to 525,571 tons of raw meal per year to correspond to the sum of the input materials fed into this process. In particular, this is the sum of the process rate limits for limestone, shale, clay, silica, and iron as specified in Tier I Conditions 4.3, 5.4 and 6.3 (e.g., $475,000 + 43,571 + 7000 = 525,571$ for limestone, shale, clay, silica and iron).

PTC Section 6 Condition 6.4.1, and Tier I Condition 13.4

The annual process rate limit for each of the three finish mills was increased from 382,737 to 394,106 tons of cement.

PTC Section 7 Condition 7.4.1, and Tier I Condition 14.4.4

The cement loadout rate limit was increased from 382,737 to 394,106 tons of cement on an average annual basis shipped from the Ash Grove facility.

6. PERMIT FEES

A PTC application fee of \$1,000.00 applies in accordance with IDAPA 58.01.01 224, and this fee was paid on February 21, 2006. A PTC processing fee of \$1,000.00 was assessed in accordance with IDAPA 58.01.01.225 as shown in Table 5.1. On February 21, 2006, DEQ received \$2,500.00 from Ash Grove along with the permit application. Therefore, a sum of \$1,500.00 was refunded to Ash Grove on May 26, 2006. Since this is a major facility, Tier I fees are also applicable. As of May 9, 2006, Ash Grove is current with the Tier I fees.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory ^a			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO _x	0.0	0	0.0
SO ₂	0.0	0	0.0
CO	0.0	0	0.0
PM ₁₀	0.0	0	0.8
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	0.0
Fee Due	\$ 1,000.00		

^a This emissions inventory is based on the maximum PTE. The allowable emissions did not change as a result of the proposed changes in this PTC. See the Emissions Inventory Section above for details.

7. PERMIT REVIEW

7.1 Regional Review of Draft Permits

A facility draft PTC and a Tier I operating permit were mailed to the DEQ Pocatello Regional Office on May 16, 2006, for review. No changes were requested.

7.2 Facility Review of Draft Permits

A facility draft PTC and a Tier I operating permit was issued to Ash Grove on May 22, 2005 for review. No comments or changes were requested.

7.3 Public Comment

In accordance with IDAPA 58.01.01.209.05(c) and 364, a 30-day comment period will be provided for the public, affected states and tribes on the draft PTC and the Tier I operating permit amendment.

IDAPA 58.01.01.008.01 defines affected states as: “All states: whose air quality may be affected by the emissions of the Tier I source and that are contiguous to Idaho; or that are within 50 miles of the Tier I source.” A review of the site location information included in the permit application indicate that the facility is located within 50 miles of tribal land. Therefore, the Fort Hall Indian Reservation will be provided an opportunity to comment on the draft PTC and the Tier I operating permit amendment. The state of Utah is located 53 miles from the facility and is not subject to notification.

The EPA will also be provided with an opportunity to comment on the proposed Tier I amendment, and this will occur concurrently with the 30-day comment period in accordance with IDAPA 58.01.01.209.05.c.iv and 366.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that proposed PTC No. P-060304, including the draft Tier I modifications, be issued for public comment, affected states and EPA review in accordance with IDAPA 58.01.01.209.05(c) for the proposed modification. The project does not involve PSD requirements.

KH/bf/sd Permit No. P-060304

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Appendix

Emissions Inventory

P-060304

ASH GROVE CEMENT COMPANY, INKOM PLANT; SUMMARY OF PROPOSED POTENTIAL EMISSIONS AND THROUGHPUT RATES

BAE Summary

	Actual Emissions 2004-2005				Limits in Tier II Permit of 1/29/99				Actual values <= Tier II Limits?			
	PM		PM ₁₀		PM		PM ₁₀		PM		PM ₁₀	
	LBS/HR	T/YR	LBS/HR	T/YR	LBS/HR	T/YR	LBS/HR	T/YR	LBS/HR	T/YR	LBS/HR	T/YR
POINT SOURCES:												
Kiln #1	11.61	50.83	9.86	43.21	11.61	50.83	9.86	43.21	Yes	Yes	Yes	Yes
Kiln #2	16.87	73.91	14.34	62.82	16.87	73.91	14.34	62.82	Yes	Yes	Yes	Yes
Baghouse #1	0.90	3.94	0.76	3.35	2.26	9.91	1.92	8.42	Yes	Yes	Yes	Yes
Baghouse #2	0.61	0.30	0.52	0.26	1.44	0.32	1.22	0.27	Yes	Yes	Yes	Yes
Baghouse #3	0.39	1.63	0.33	1.39	0.51	2.14	0.44	1.82	Yes	Yes	Yes	Yes
Baghouse #4	0.18	0.80	0.16	0.68	0.32	0.61	0.27	0.52	Yes	No	Yes	No
Baghouse #5	0.00	0.00	0.00	0.00	0.91	1.73	0.77	1.47	Yes	Yes	Yes	Yes
Baghouse #6	0.49	2.15	0.42	1.83	0.63	2.78	0.54	2.36	Yes	Yes	Yes	Yes
Baghouse #7	1.85	6.47	1.57	5.50	1.59	5.21	1.35	4.43	No	No	No	No
Baghouse #8	1.03	3.60	0.88	3.06	2.09	6.86	1.78	5.83	Yes	Yes	Yes	Yes
Baghouse #9	1.53	6.68	1.30	5.68					No	No	No	No
Baghouse #10	0.27	0.58	0.23	0.50	2.82	9.26	2.40	7.87	Yes	Yes	Yes	Yes
Baghouse #11	0.26	1.13	0.22	0.96	0.31	0.67	0.26	0.57	Yes	No	Yes	No
Subtotal:	35.73	150.91	30.36	128.28	41.05	163.56	34.89	139.02	Yes	Yes	Yes	Yes
PROCESS FUGITIVES:												
Drilling, Blasting and Dozing	3.24	3.19	0.42	1.28	5.39	29.34	1.78	3.09	Yes	Yes	Yes	Yes
Limestone Receiving, Crushing and Storage	1.38	0.99	0.66	0.48	23.59	17.75	10.51	7.82	Yes	Yes	Yes	Yes
Iron Ore Receiving, Crushing and Storage	0.35	0.03	0.17	0.02	2.26	0.04	1.08	0.02	Yes	Yes	Yes	Yes
Silica Receiving, Crushing and Storage	0.38	0.17	0.18	0.08	10.18	2.63	4.52	1.18	Yes	Yes	Yes	Yes
Gypsum Receiving, Crushing and Storage	0.44	0.06	0.21	0.03	22.86	1.18	10.21	0.54	Yes	Yes	Yes	Yes
Silo Withdrawal, Conveying & Raw Grinding	0.05	0.20	0.02	0.09	0.42	1.48	0.19	0.68	Yes	Yes	Yes	Yes
Coal Handling	0.20	0.21	0.10	0.10	5.61	0.74	1.40	0.18	Yes	Yes	Yes	Yes
Clinker Receiving	0.01	0.01	0.00	0.01								
New Haul Road for clinker receiving	0.07	0.15	0.03	0.07								
#1 & #2 Clinker Coolers and Clinker Handling	1.04	3.17	0.52	1.59	33.25	16.84	7.47	6.75	Yes	Yes	Yes	Yes
Clinker Reclaim	0.34	0.74	0.17	0.37	0.17	0.77	0.09	0.38	No	Yes	No	Yes
Cement Kiln Dust Handling	0.58	1.06	0.29	0.53	1.81	1.59	0.90	0.80	Yes	Yes	Yes	Yes
Finish Grinding and Associated Handling	0.19	0.50	0.06	0.17	3.19	5.24	1.53	2.41	Yes	Yes	Yes	Yes
Cement Loadout	0.31	0.22	0.16	0.11	15.83	4.01	7.91	2.00	Yes	Yes	Yes	Yes
Subtotal:	8.57	10.71	2.99	4.93	124.56	81.61	47.59	25.85	Yes	Yes	Yes	Yes
PAVED ROADS	-	1.2	-	0.45	46.52	16.12	10.01	3.47	Yes	Yes	Yes	Yes
UNPAVED ROADS	-	5.7	-	2.04	19.97	16.58	7.19	5.97	Yes	Yes	Yes	Yes
PILES	-	4.5	-	2.13	5.39	33.25	1.78	3.29	Yes	Yes	Yes	Yes
SUB TOTAL FOR PROCESS FUGITIVES	8.6	22.0	3.0	9.5	196.4	147.6	66.6	38.6	Yes	Yes	Yes	Yes
GRAND TOTAL	44.3	173.0	33.4	137.8	237.5	311.1	101.5	177.6	Yes	Yes	Yes	Yes

[illegible]

5/5/2006, 3:

BAE 314

ASH GROVE CEMENT COMPANY, INKOM PULP, PROCESS FUGITIVE EMISSIONS																																														
SOURCE		NAME TO		HRS DAYS		MATERIAL		THROUGHPUT		J		K		L		M		N		O		P		Q		R		S		T		U		V		W		X		Y						
CODE		NAME FROM		DAY YR		HRS		TON/HR		MAX		TON/HR		TSP		PM10		REF		PM10		TSP		PM10		TSP		PM10		TSP		PM10		TSP		PM10		TSP		PM10						
332	ENVY	F 169	PK PUMP MILL #3	24	15	348	CEMENT	8.088	0.2700	40	28.3	8.088	0.2700	0.1350	0.1350	0.1350	0.1350	50%	50%	0.1350	0.1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
333	ENVY	F 170	PK PUMP MILL #3	24	15	348	CEMENT	8.088	0.2700	40	28.3	8.088	0.2700	0.1350	0.1350	0.1350	0.1350	50%	50%	0.1350	0.1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
334	ENVY	F 171	PK PUMP MILL #3	24	15	348	CEMENT	8.088	0.2700	40	28.3	8.088	0.2700	0.1350	0.1350	0.1350	0.1350	50%	50%	0.1350	0.1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
335	ENVY	F 172	PK PUMP MILL #3	24	15	348	CEMENT	8.088	0.2700	40	28.3	8.088	0.2700	0.1350	0.1350	0.1350	0.1350	50%	50%	0.1350	0.1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
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ASH GROVE CEMENT COMPANY, INKOM PLANT; SUMMARY OF PROPOSED POTENTIAL EMISSIONS AND THROUGHPUT RATES

Projected Actual Emissions (PAE) Summary

	Proposed				Limits in Tier II Permit of 1/29/99				Proposed values <= Tier II Limits?			
	PM		PM ₁₀		PM		PM ₁₀		PM		PM ₁₀	
	LBS/HR	T/YR	LBS/HR	T/YR	LBS/HR	T/YR	LBS/HR	T/YR	LBS/HR	T/YR	LBS/HR	T/YR
POINT SOURCES:												
Kiln #1	11.61	50.83	9.86	43.21	11.61	50.83	9.86	43.21	Yes	Yes	Yes	Yes
Kiln #2	16.87	73.91	14.34	62.82	16.87	73.91	14.34	62.82	Yes	Yes	Yes	Yes
Baghouse #1	0.90	3.94	0.76	3.35	2.26	9.91	1.92	8.42	Yes	Yes	Yes	Yes
Baghouse #2	0.61	0.30	0.52	0.26	1.44	0.32	1.22	0.27	Yes	Yes	Yes	Yes
Baghouse #3	0.39	1.63	0.33	1.39	0.51	2.14	0.44	1.82	Yes	Yes	Yes	Yes
Baghouse #4	0.18	0.80	0.16	0.68	0.32	0.61	0.27	0.52	Yes	No	Yes	No
Baghouse #5	0.00	0.00	0.00	0.00	0.91	1.73	0.77	1.47	Yes	Yes	Yes	Yes
Baghouse #6	0.49	2.15	0.42	1.83	0.63	2.78	0.54	2.36	Yes	Yes	Yes	Yes
Baghouse #7	1.85	6.47	1.57	5.50	1.59	5.21	1.35	4.43	No	No	No	No
Baghouse #8	1.03	3.60	0.88	3.06	2.09	6.86	1.78	5.83	Yes	Yes	Yes	Yes
Baghouse #9	1.53	6.68	1.30	5.68					No	No	No	No
Baghouse #10	0.27	0.58	0.23	0.50	2.82	9.26	2.40	7.87	Yes	Yes	Yes	Yes
Baghouse #11	0.26	1.13	0.22	0.96	0.31	0.67	0.26	0.57	Yes	No	Yes	No
Subtotal:	35.73	150.91	30.36	128.28	41.05	163.56	34.89	139.02	Yes	Yes	Yes	Yes
PROCESS FUGITIVES:												
Drilling, Blasting and Dozing	3.56	4.88	0.58	1.96	5.39	29.34	1.78	3.09	Yes	Yes	Yes	Yes
Limestone Receiving, Crushing and Storage	1.38	1.12	0.66	0.54	23.59	17.75	10.51	7.82	Yes	Yes	Yes	Yes
Iron Ore Receiving, Crushing and Storage	0.35	0.03	0.17	0.02	2.26	0.04	1.08	0.02	Yes	Yes	Yes	Yes
Silica Receiving, Crushing and Storage	0.38	0.17	0.18	0.08	10.18	2.63	4.52	1.18	Yes	Yes	Yes	Yes
Gypsum Receiving, Crushing and Storage	0.44	0.12	0.21	0.06	22.86	1.18	10.21	0.54	Yes	Yes	Yes	Yes
Silo Withdrawal, Conveying & Storage	0.05	0.23	0.02	0.11	0.42	1.48	0.19	0.68	Yes	Yes	Yes	Yes
Coal Handling	0.20	0.21	0.10	0.10	5.61	0.74	1.40	0.18	Yes	Yes	Yes	Yes
Clinker Receiving	0.01	0.01	0.00	0.01								
New Haul Road for clinker receiving	0.07	0.15	0.03	0.07								
#1 & #2 Clinker Coolers and Clinker Handling	1.04	3.17	0.52	1.59	33.25	16.84	7.47	6.75	Yes	Yes	Yes	Yes
Clinker Reclaim	0.34	0.74	0.17	0.37	0.17	0.77	0.09	0.38	No	Yes	No	Yes
Cement Kiln Dust Handling	0.58	1.06	0.29	0.53	1.81	1.59	0.90	0.80	Yes	Yes	Yes	Yes
Finish Grinding and Associated Handling	0.19	0.53	0.06	0.18	3.19	5.24	1.53	2.41	Yes	Yes	Yes	Yes
Cement Loadout	0.31	0.24	0.16	0.12	15.83	4.01	7.91	2.00	Yes	Yes	Yes	Yes
Subtotal:	8.88	12.66	3.15	5.73	124.56	81.61	47.59	25.85	Yes	Yes	Yes	Yes
PAVED ROADS	-	1.4	-	0.53	46.52	16.12	10.01	3.47	Yes	Yes	Yes	Yes
UNPAVED ROADS	-	6.9	-	2.47	19.97	16.58	7.19	5.97	Yes	Yes	Yes	Yes
PILES	-	4.5	-	2.13	5.39	33.25	1.78	3.29	Yes	Yes	Yes	Yes
SUB TOTAL FOR PROCESS FUGITIVES	8.9	25.4	3.1	10.9	196.4	147.6	66.6	38.6	Yes	Yes	Yes	Yes
GRAND TOTAL	44.6	176.3	33.5	139.1	237.5	311.1	101.5	177.6	Yes	Yes	Yes	Yes

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2.2.5 Summary

The four proposed changes described above provide Ash Grove with three options. First, Ash Grove could increase the amount of gypsum processed to compensate for lower grades of gypsum. Second, Ash Grove could pre-mix a Finish Mill feed blend consisting of a varying ratio of gypsum and limestone. This blend is currently constrained by the permitted throughput limit of 22,737 tons gypsum per year. Third, Ash Grove could blend the limestone from Silo 25 with the gypsum (and/or clinker), which allows better blending capabilities. Using the third option, Ash Grove will feed limestone onto Reclaim Belt #3 and blend with the gypsum while running gypsum to the gypsum feed bins. Ash Grove would also like to retain the option to blend the limestone with clinker while running clinker to the clinker feed bins.

Recent actual throughput rates and proposed future throughput rates are summarized in Table 1.

Table 1. Summary of Baseline and Proposed Future Throughput Rates

		2004 (Tons)	2005 (Tons)	Two Year Average (Tons)	Proposed (Tons)	Increase (Tons)
Limestone	Drilled, Blasted, and Dozed	323,657 ✓	365,350 ✓	344,504 ✓	528,000	183,497 ✓
Limestone	Received, Crushed, and Stored	397,255 ✓	403,512 ✓	400,384 ✓	475,000 ✓	74,617 ✓
Gypsum	Receiving, Crushing, and Storage (Process Rate - Used)	17,995 ✓	20,359 ✓	19,177 ✓	34,106 ✓	14,929 ✓
Cement Production	Finish Grinding and Associated Handling Production - (Tons)	308,622 ✓	323,439 ✓	316,031 ✓	394,106 ✓	78,076 ✓
Cement Shipping	Total Cement Loadout (Tons)	307,792 ✓	324,234 ✓	316,013 ✓	394,106 ✓	78,093 ✓

It is important to note that Ash Grove included the proposed (higher) throughputs in the emission inventory developed for the Tier II permit application submitted in December 2002. In that application, and in several requests since December 2002, Ash Grove has sought relief from several of the material throughput limits currently in effect. This PTC application is a reiteration

of those previous requests, and is intended to obtain approval faster than the Tier II approval process.

2.3 PROPOSED OPERATIONS - CRITERIA POLLUTANT EMISSIONS (PM10)

Mining, crushing, and material handling of the additional limestone, gypsum, and cement will generate small quantities of fugitive dust. The only pollutant relevant to this PTC application is particulate matter (as PM and PM10).

The proposed changes identified in Section 2.2 increase emissions only as a result of the higher throughputs. The new trip chute on top of the silos will not increase emissions beyond what would occur if Ash Grove increased the throughput to one of the existing limestone silos. Similarly, minor changes in the blending of gypsum and uncalcined limestone as they are conveyed to the finish mills will not result in new emission points, but increased throughput volumes will slightly increase emissions. Furthermore, only annual throughputs are affected; Ash Grove is not requesting any changes in short term throughput levels.

The emissions implications associated with this application are quantified from the following six components:

- (1) Increase in the tons of limestone that can be Drilled, Blasted, and Dozed.
- (2) Increase in the tons of limestone that can be Quarried (Received, Crushed, and Stored). This includes conveying crushed limestone to Silo 25.
- (3) Increase in the tons of gypsum that can be processed (Received, Crushed, and Stored). Includes a blend of gypsum and limestone.
- (4) Conveying crushed limestone from Silo 25 to the Finish Mill feed bins. Involves conveying the limestone from Silo 25 to Reclaim Belt #3 and blending with gypsum and/or clinker while filling the respective feed bins.
- (5) Increase in the tons of cement that can be produced (Finish Grinding and Associated Handling).
- (6) Increase in the tons of cement that can be shipped (Cement Loadout).

The effect of these changes on PM and PM10 emissions are summarized in tables 2 and 3, below, and the text that follows. Spreadsheets identifying the emissions calculations are provided on a compact disc included as Appendix D. Note that the spreadsheet for the proposed production limits has not been revised since it was submitted in September 2004; only the baseline emissions spreadsheet is new.

Tables 2 and 3 indicate that increases in emissions of PM and PM10 are well below the PSD applicability thresholds of 25 and 15 tons per year, respectively.

Table 2. Summary of Baseline and Projected Actual PM Emissions (tons per year)

	Current Permit Limits	Baseline Actual Emissions	Projected Actual Emissions	Delta
Drilling, Blasting and Dozing	29.34	3.19	4.88	1.69
Limestone Receiving, Crushing and Storage	17.75	0.99	1.12	0.13
Gypsum Receiving, Crushing and Storage	1.18	0.06	0.12	0.05
Finish Grinding and Associated Handling	5.24	0.50	0.53	0.03
Cement Loadout	4.01	0.22	0.24	0.02
Total	57.52	4.96	6.88	1.92

Table 3. Summary of Baseline and Projected Actual PM10 Emissions (tons per year)

	Current Permit Limits	Baseline Actual Emissions	Projected Actual Emissions	Delta
Drilling, Blasting and Dozing	3.09	1.28	1.96	0.68
Limestone Receiving, Crushing and Storage	7.82	0.48	0.54	0.06
Gypsum Receiving, Crushing and Storage	0.54	0.03	0.06	0.02
Finish Grinding and Associated Handling	2.41	0.17	0.18	0.01
Cement Loadout	2.00	0.11	0.12	0.01
Total	15.86	2.07	2.86	0.78

(1) Increase in the tons of limestone that can be Drilled, Blasted, and Dozed

Compared with the baseline (actual) throughput values from 2004 and 2005, the proposed throughput for limestone quarrying represents an increase of 183,497 tons per year. Although there would be no additional source of emissions, existing dust emission would increase with higher limestone throughput. The attached compact disc (provided in Appendix D) identifies increased emissions from the drilling, loading, hauling and pushing of limestone in the quarry area and the drop down to the crusher area. The increase tons of limestone throughput results in increases of only 0.68 and 1.69 tpy over baseline PM and PM10 emissions, respectively.